

## A new circumscription for *Lysinema ciliatum* (Ericaceae: Styphelioideae: Epacrideae) and reinstatement of *L. pentapetalum*

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### Abstract

Thiele, K.R. A new circumscription for *Lysinema ciliatum* (Ericaceae: Styphelioideae: Epacrideae) and reinstatement of *L. pentapetalum*. *Nuytsia* 19(2): 265–275 (2009). *Lysinema ciliatum* has long been regarded as a widespread and variable species. Occurring throughout much of the South-West Botanical Province of Western Australia on a variety of substrates, it is morphologically variable in foliar and floral characters, with up to eleven morphotypes informally recognised as putatively distinct taxa following a preliminary assessment in the early 1990s. Examination of material from throughout the species' range shows that most of the currently recognised informal morphotypes comprise a single, variable species which cannot be adequately divided into taxa. A second, distinct species is restricted to the south coast of Western Australia, approximately between Albany and Esperance, with a disjunct outlier east of Perth. Comparison with types shows that the correct name for the widespread taxon is *Lysinema pentapetalum* R.Br., while the mostly southern-coastal taxon matches the type of *L. ciliatum*. Descriptions and distribution maps are provided for these taxa, along with a key to all species of *Lysinema*.

### Introduction

*Lysinema* R.Br. was erected by Brown (1810) to accommodate five species in the then family Epacridaceae (now Ericaceae subfamily Styphelioideae), mostly from south-west Western Australia but including the eastern Australian species *L. pungens* (Cav.) R.Br. (syn. *Epacris pungens* Cav.). The latter species was subsequently removed to the monotypic genus *Woolfsia* F. Muell. by Mueller (1874). Brown's four Western Australian species were *L. ciliatum* R.Br., *L. pentapetalum* R.Br., *L. conspicuum* R.Br. and *L. lasianthum* R.Br.

Bentham (1869:242) accepted all Brown's species except *L. pentapetalum*, which he reduced to a synonym of *L. ciliatum*, along with *L. curvatum* Lindl., *L. ovatum* Sond., *L. spicatum* Lindl. and *L. virgatum* DC. Subsequently, *L. elegans* Sond. and *L. fimbriatum* F. Muell. were described and accepted as distinct, bringing the total number of accepted taxa in the genus to five, all from Western Australia.

Following Bentham, *Lysinema ciliatum* has been regarded as a complex and variable species. A preliminary analysis of material at the Western Australian Herbarium in the 1990s by R. Cranfield (pers.

comm.) resulted in the recognition and subsequent phrase-naming of eleven informal, geographically named taxa at the rank of forma, with the expectation that further study would result in some of these being recognised at a higher rank.

In 2007, M. Bennett from the Ravensthorpe Wildflower Society drew my attention to two distinctly different morphotypes in the *L. ciliatum* complex growing sympatrically near Hopetoun. The morphotypes grew closely intermixed with no sign of intermediates or hybrids, and differed significantly in floral morphology despite overlapping in flowering time. One morphotype, with relatively few, short, chestnut-brown bracts and yellowish flowers, conformed with Cranfield's formas Mt Barren (E. & S. Pignatti 1409) and Denmark (D.H. Perry s.n. 12/1961). The other, with longer, paler flowers and more numerous, narrower bracts which were dark brown with contrasting pale margins, was similar to Cranfield's remaining formas. Subsequent field work determined that the former morphotype is widespread close to the coast from east of Esperance to west of Albany, and is frequently closely sympatric with, but always clearly morphologically distinct from, the more widespread form.

With the exception of formas Mt. Barren and Denmark, Cranfield's remaining formas are not considered here to be taxonomically distinct, but rather to comprise minor variation in a widespread and variable single species that is not appropriately divided into sub-taxa. While specimens of these forms vary in habit, inflorescence shape and leaf shape, the variation is continuous and cannot be partitioned into discrete, covarying morphotypes, nor is it well-correlated with geographic, ecological or substrate factors.

Examination of type material held at BM and K for this study reveals that Cranfield's formas Mt Barren and Denmark closely match the type of *Lysinema ciliatum* R.Br., while the more widespread taxon currently known as *L. ciliatum* matches the type of *L. pentapetalum* R.Br.

Accordingly, the circumscription of *L. ciliatum* is reduced here to encompass specimens previously referred to formas Mt Barren and Denmark, while the name *Lysinema pentapetalum* is reinstated for the majority of specimens previously ascribed to *L. ciliatum*.

### Taxonomy

***Lysinema ciliatum*** R.Br., *Prodr.*: 552 (1810).—*Epacris ciliata* (R.Br.) Poir. *Encycl. méth., Bot.*: 555 (1812), *nom. illeg. et inval.* Type citation: 'In collibus sterilibus ovides ad Bay I [Lucky Bay] ora Australis Jan. 1802' (holo: BM, photo!).

*Lysinema ciliatum* forma Mt. Barren (E. & S. Pignatti 1409) in G. Paczkowska & A.R. Chapman, *West. Austral. Fl.: Desc. Cat.* p. 241 (2000).

*Lysinema ciliatum* forma Denmark (D.H. Perry s.n. 12/1961) in G. Paczkowska & A.R. Chapman, *West. Austral. Fl.: Desc. Cat.* p. 241 (2000).

Spreading to erect or straggling *shrubs* to 0.2–1.0 m high from a taproot, usually single-stemmed at the base but the stems often many-branched immediately above the base, producing relatively few, erect, little-branched, seasonal flowering stems; young stems moderately to densely puberulous with minute, white, straight, patent to slightly retrorse, uniform hairs *c.* 0.1 mm long. *Leaves* crowded and +/- imbricate, usually erect and appressed but often spreading on short side-branches, alternate, rather

thick, elliptic to ovate or (rarely) obovate, 2.5–8.0 × 1.0–3.0 mm, narrowed at the base into a short, obscure petiole, glabrous apart from minutely ciliolate margins mostly in the lower 1/4–1/2 and a patch of minute hairs on the base of the petiole; upper surface flat to concave, lower surface convex-keeled, with 1–several obscure nerves visible when dry; apex obtuse, +/- carinate. *Flowers* sweetly scented, solitary in upper leaf-axils, each surrounded by a cylindrical involucre of bracts<sup>1</sup>, forming few- to many-flowered confluences terminal to growth units (apex growing on after flowering or determinate by abortion), these spike-like and many-flowered (to 7 cm long) when the growth unit is strong, head-like and few-flowered on short units with weak growth; bracts 12–20(–25), glossy, chestnut-brown, rigid, scarious, ovate to narrow-ovate, obtuse, ±glabrous except for ciliate margins which do not sharply contrast in colour with the body of the bract. *Corolla* cream to pale yellow; tube cylindrical to narrowly urceolate, straight, 8–12 mm long, equal to or exceeding the bracts by up to 3.5 mm; lobes 3–5 mm long, obtuse. *Stamens* free from corolla but entirely enclosed within it; anthers linear, 2.5–4.0 mm long. *Ovary* densely pubescent, 5-angled; style terminal, enclosed in corolla tube; stigma capitate, with 5 terminal stigmatic lobes; disc of 5 broadly oblong scales c. 1/4 – 3/4 the length of the ovary at anthesis; ovules numerous, axile. *Capsule* 3.5–5.0 mm long, pubescent, enclosed within the persistent bracts; seeds not seen. (Figure 1A)

*Other specimens examined.* WESTERN AUSTRALIA: 64 km E of Jerramungup, 7 Nov. 1978, R.J. Cranfield 1096 (PERTH 04986334); 8 km E of the Maringarup South Road and Devils Creek Road junction, 28 km E of Gairdner, 30 Nov. 1985, D.B. Foreman 1359 (PERTH 05047331, AD, CANB, NSW); 7 km W of Bremer Bay on Boxwood Hill to Bremer Bay Road, 1 Dec. 1985, D.B. Foreman 1397 (PERTH 05047358, AD, NSW, CANB, HO, K); W side of Lucky Bay, 21 Jan. 1966, A.S. George 7501 (PERTH 05047242); lower slopes Mount Warriup [Warriup Hill], Green Ranges, E of Cheyne Beach, 17 Nov. 1982, G.J. Keighery 5786 (PERTH 05047609); Jerdacuttup Lakes Reserve, ENE of Hopetoun, 15 Oct. 1983, G.J. Keighery 6508 (PERTH 05047420); 1 km E of Cranbrook, 8 Oct. 1983, G.J. Keighery 6605 (PERTH 05047404); Near Mount Barnett, [Barnett Peak] Salt River Road, Stirling Ranges, 13 Sept. 1986, G.J. Keighery 8402 (PERTH 5047544); Torndirrup National Park, S Albany, 28 Nov. 1986, G.J. Keighery 8819 (PERTH 05047668); Kululinup [Kulunilup] Nature Reserve, 21 Mar. 1997, G.J. Keighery & N. Gibson 2407 (PERTH 05207606); Denmark, Dec. 1961, D.H. Perry s.n. (PERTH 02572265); Cape Arid National Park, E of Esperance, 29 Nov. 1971, R.D. Royce 9839 (PERTH 05047234); along Lower Denmark Road near Bornholm. 19 Dec. 1982, A. Strid 21815 (PERTH 02572273); 45 km W of Israelite Bay, 1 Oct. 1968, P.G. Wilson 8154 (PERTH 05047455).

*Distribution and habitat.* Occurs mainly on the south coast and adjacent hinterlands of Western Australia between the Esperance and Denmark districts (Figure 2B), in heathlands on sand. Specimen records at PERTH suggest that there are two separate areas of distribution within this region: (1) between Mt Ragged and Butty Harbour near Esperance, and (2) between the Jerdacuttup River and Denmark. It has not been collected between Mason Bay and Butty Head; field observations are needed to show whether this apparent disjunction is real.

Three collections (F. Hort & J. Hort 2177, F. Hort & J. Hort 3392 and F. Hort, J. Hort 3394 & G. Cassis) from the Darling Range between the Brookton Highway and Albany Highway south-east of Armadale, are widely disjunct, but otherwise appear typical for the species.

<sup>1</sup> In *Lysinema* as in a few other genera in Styphelioideae (e.g. *Conostephium*) there is no clear demarcation between bracts and sepals but simply a grade in size and shape from relatively short, broad basal bracts to longer, narrower ones closer to the perianth. In this paper all the parts subtending the corolla are termed bracts, as morphological recognition of a distinct set of sepals is not possible.



Figure 1. Inflorescences, photographed from dried herbarium specimens. A – *Lysinema ciliatum* (PERTH 05047668); B – *L. pentapetalum* (PERTH 02571900).

**Conservation status.** *Lysinema ciliatum* is widespread and occurs in many Nature Reserves and National Parks within its area of distribution.

**Notes.** *Lysinema ciliatum* may be distinguished from the more widespread *L. pentapetalum* by the colour of the involucral bracts surrounding each flower. In *L. ciliatum* these are uniformly pale chestnut in colour whereas in *L. pentapetalum* they are usually dull, dark brown with the marginal cilia forming a contrasting pale border (Figure 1). *Lysinema ciliatum* usually has fewer bracts than *L. pentapetalum*, although the ranges overlap (12–25 for *L. ciliatum*, 20–36 for *L. pentapetalum*). Field observations suggest that the flowers of *L. ciliatum* are usually darker in colour than *L. pentapetalum* (cream to yellow compared with white to cream) and are sweetly scented without the distinctive curry odour of *L. pentapetalum*; one specimen (Keighery 4951) records a curry scent for *L. ciliatum*, but this may be in error and refer to co-occurring plants of *L. pentapetalum*.

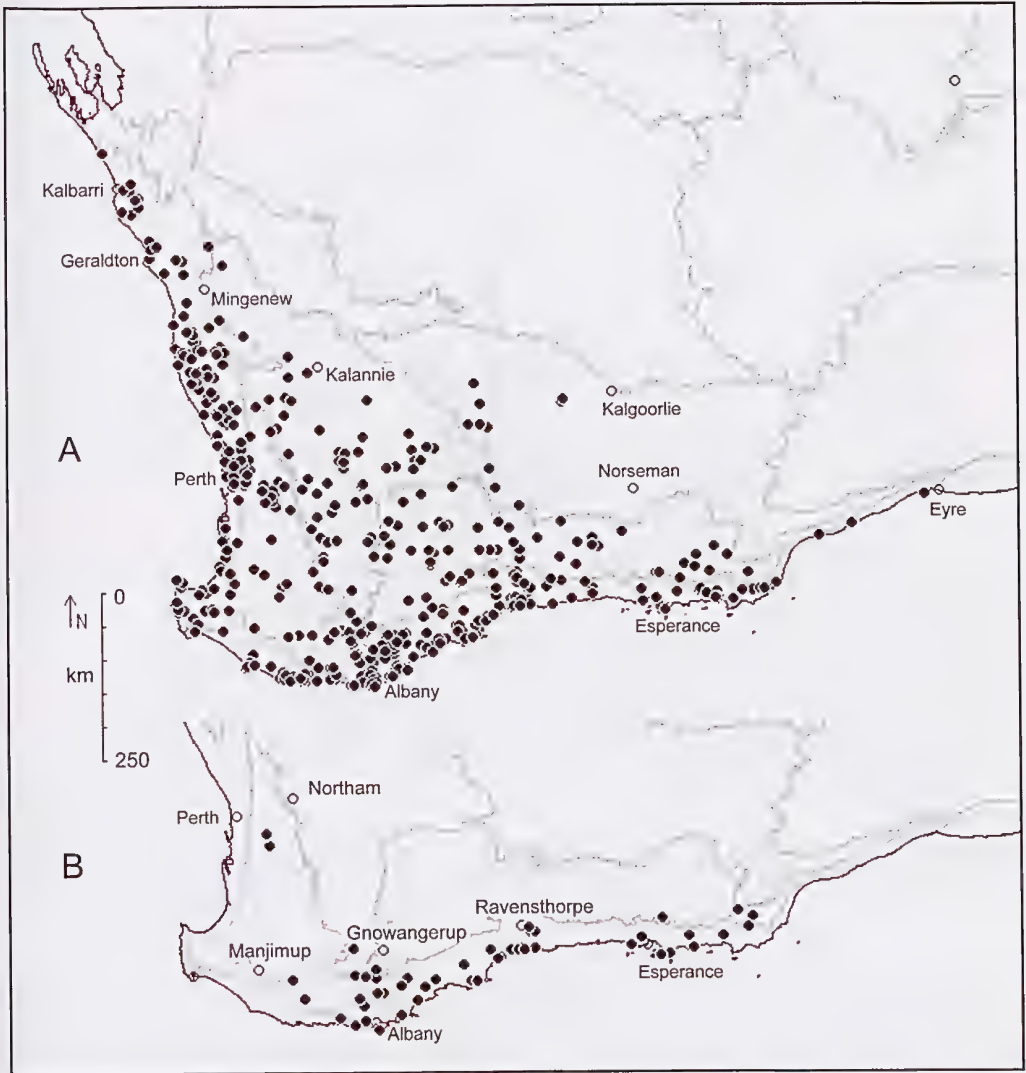


Figure 2. Distribution of *Lysinema pentapetalum* (A) and *L. ciliatum* (B) in south-west Western Australia

Mixed stands of *Lysinema ciliatum* and *L. pentapetalum* have been observed at a number of localities (e.g. Carnaby's Rd near Hopetoun, K.R. Thiele 3347 and 3348) and are probably common; no intermediate plants have been found at these sites, strongly suggesting that the plants are reproductively isolated and do not hybridise. The two species appear to have similar ecological ranges and preferences. Analysis of herbarium specimens indicates that peak flowering for *L. ciliatum* is slightly later than for *L. pentapetalum* (Figure 3).

As with *L. pentapetalum*, leaves of *L. ciliatum* vary greatly in size and shape, both within and between plants. In general, leaves on basal short-shoots of determinate growth are small (c. 2–3 mm long) and spreading, whereas leaves on long, vigorous flowering shoots are longer (to 8 mm long) and appressed. Leaves at the base of growth units tend to be broader than leaves elsewhere on the growth units. Although there is broad variation within the two species, there are also consistent differences

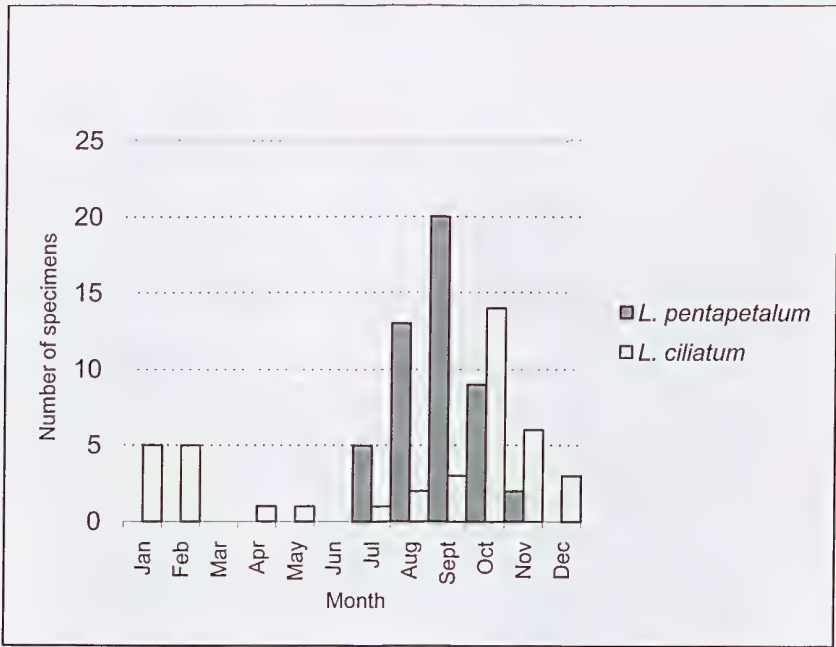


Figure 3. Collection dates for all flowering specimens held at PERTH of *Lysinema ciliatum* and sympatric collections of *L. pentapetalum* (specimen records were filtered to include only those south of 33° 30' S and east of 117° 30' E.). Peak flowering is in September for *L. pentapetalum* and October for *L. ciliatum*.

between them, with leaves of *L. ciliatum* tending to be broader and more elliptic whereas those of *L. pentapetalum* are narrower and more ovate to almost linear (Figure 4).

The shape and size of the conflorescence varies greatly also, from few-flowered 'heads' to many-flowered elongate 'spikes'. Field observations suggest that young plants with long, vigorous seasonal growth produce elongate, spike-like conflorescences, while less vigorously growing plants with short seasonal growth produce few-flowered head-like ones. The wide range of variation in these characters is considered to indicate ecological factors and is not taxonomically significant.



Figure 4. Variation in leaves in *Lysinema ciliatum* (left) and *L. pentapetalum* (right). Scale bar 10 mm.

***Lysinema pentapetalum*** R.Br., *Prodr.*: 552 (1810).— *Epacris pentapetala* (R.Br.) Poiret, *Encycl. méth., Bot.*: 555 (1812), *nom.illeg.* Type: Port Regis Georgii IIIs [King George Sound] Dec. 1801 (holo: BM, photo!).

*Lysinema spicatum* Lindl., *Sketch veg. Swan R.* 1: xxv (1839).— *Lysinema virgatum* DC., in A.P. de Candolle, *Prodr.* 7(2): 765 (1839). Type: Swan River, Drummond, 1839 (holo: CGE, photo!, G-DC, photo!).

*Lysinema curvatum* Lindl., *Sketch veg. Swan R.* 1: xxv (1839). Type: Swan River, Drummond, 1839 (holo: CGE, photo!).

*Lysinema ciliatum* forma Central Wheatbelt (S. Paust 898) in G. Paczkowska & A.R. Chapman, *West. Austral. Fl.: Desc. Cat.* p. 241 (2000).

*Lysinema ciliatum* forma Esperance (G. Perry 176) in G. Paczkowska & A.R. Chapman, *West. Austral. Fl.: Desc. Cat.* p. 241 (2000).

*Lysinema ciliatum* forma Goldfields (L. Haegi 984) in G. Paczkowska & A.R. Chapman, *West. Austral. Fl.: Desc. Cat.* p. 241 (2000).

*Lysinema ciliatum* forma Jerramungup (N.G. Marchant 70/234) in G. Paczkowska & A.R. Chapman, *West. Austral. Fl.: Desc. Cat.* p. 241 (2000).

*Lysinema ciliatum* forma Lake King (J.S. Beard 3698) in G. Paczkowska & A.R. Chapman, *West. Austral. Fl.: Desc. Cat.* p. 241 (2000).

*Lysinema ciliatum* forma north of Perth (N. Sammy s.n. 15/8/1985) in G. Paczkowska & A.R. Chapman, *West. Austral. Fl.: Desc. Cat.* p. 241 (2000).

*Lysinema ciliatum* forma Perth limestone (W. Ives s.n. 9/8/1960) in G. Paczkowska & A.R. Chapman, *West. Austral. Fl.: Desc. Cat.* 241 (2000).

*Lysinema ciliatum* forma Perth-Bunbury sands (J.W. Green 351) in G. Paczkowska & A.R. Chapman, *West. Austral. Fl.: Desc. Cat.* p. 241 (2000).

*Lysinema ciliatum* forma S.W. Coastal (N.G. Marchant 71/719) in G. Paczkowska & A.R. Chapman, *West. Austral. Fl.: Desc. Cat.* p. 241 (2000).

*Lysinema ciliatum* auct. non R.Br.

Spreading to erect or straggling *shrubs* to 0.2–1.0 m high from a taproot, usually single-stemmed at the base but the stems often many-branched immediately above the base, producing relatively few, erect, little-branched, seasonal flowering stems; young stems moderately to densely pubescent with white, +/- flexuous, retrorsely-appressed, +/- interwoven hairs to 0.25 mm long. *Leaves* crowded and +/- imbricate, usually erect and appressed but often spreading on short-side branches, alternate, rather thick, narrowly ovate to almost linear, 2–10 × 1.0–2.5 mm, narrowed at the base into a short, obscure petiole, glabrous apart from minutely ciliolate margins and a patch of minute hairs on the base of the

petiole; upper surface flat to concave, lower surface convex-keeled, with 1–several obscure nerves visible when dry; apex obtuse, +/- carinate. *Flowers* with a sweet musky scent reminiscent of curry, solitary in upper leaf-axils, each surrounded by a cylindrical, involucre of bracts, forming few- to many-flowered confluences terminal to growth units (apex growing on after flowering or determinate by abortion), these spike-like and many-flowered (to 15 cm long) when the growth unit is strong, head-like and few-flowered on short units with weak growth; bracts 20–36, dark, dull brown, rigid, scarious, ovate to narrow-ovate to almost linear, obtuse, the densely pale-ciliate margins contrasting sharply with the body of the bracts. *Corolla* white to cream sometimes with pink tinges in bud; tube cylindrical to narrowly urceolate, straight or sometimes curved, (6–)10–18 mm long, equal to or exceeding the bracts by up to 3.5 mm; lobes 3–6 mm long, obtuse. *Stamens* free from corolla but entirely enclosed within it; anthers linear, 4–5 mm long. *Ovary* densely pubescent, 5-angled; style terminal, enclosed in corolla tube; stigma capitate, with 5 terminal stigmatic lobes; disc of 5 broadly oblong scales *c.* 1/2 to as long as the ovary at anthesis; ovules numerous, axile. *Capsule* 5–8 mm long, pubescent, enclosed within the persistent bracts; seeds *c.* 1.5–1.8 × 0.5 mm, linear, pale reddish-brown. (Figure 1B)

*Other specimens examined.* WESTERN AUSTRALIA: Rabbit proof fence towards Starvation Boat Harbour, 10 Aug. 1965, *Anonymous* 16155 (PERTH 05026881); Emu Point Reserve, Albany, 17 July 1967, *E.M. Bennett* 1989 (PERTH 05027063); W boundary of John Forrest National Park, 1.5 km along Throssell Road, off York Road, 16 Aug. 1986, *A.R. Chapman* 321 (PERTH 05043964, NSW, HO); Jarrah Road, South Perth, 8 Aug. 1978, *R.J. Cranfield* R64 (PERTH 03012115); 26 km due SW of Bodallin, 17 Sept. 1982, *R.J. Cranfield* 2476 (PERTH 05044030); *c.* 13 km E of estuary of the Oldfield River (Oldfield River is ca 100 km W of Esperance), 12 Oct. 1968, *N.N. Donner* 2997 (PERTH 05026911, AD); *c.* 2 miles [*c.* 3 km] N of Wongan Hills, 9 Aug. 1959, *A.S. George* 83 (PERTH 05043824); 7.8 km S of Cheritons Find–Forrestania Road junction, 23 Sep. 1989, *N. Gibson* 0031 (PERTH 05044065); 1 km inland from sea, Boat Harbour, 100 km due E of Albany, 14 Aug. 1970, *N.G. Marchant* 70/234 (PERTH 02572346); Frank Hann National Park, 11 July 1978, *D. Monk* 28 (PERTH 05043530); Maylands, Aug. 1919, *Mrs. Pelloe s.n.* (PERTH 05047137); 26 km by road (*c.* N) from Hopetoun on Ravensthorpe–Hopetoun road, 5 Aug. 1974, *G. Perry* 92 (PERTH 05044146); 6 km W of Tammin on Great Eastern Highway, 5 Aug. 1979, *J.M. Powell* 1131 (PERTH 05043808, CANB, HO, L, K, NSW); *c.* 1 km S of Cape Naturaliste Lighthouse on road to Dunsborough, 13 Aug. 1979, *J.M. Powell* 1144 (PERTH 05026504, AK, BISH, CANB, L, K, NSW); junction of Cowalellup Road and northern road to Ongerup, 3 Aug. 1986, *J.M. Powell* 2423 (PERTH 05026814, NSW, HO); 5 km W of Lake King, 5 Aug. 1968, *R.A. Saffrey* 587 (PERTH 05043603); 33.6 km from Port Gregory along Yerina Springs road, heading towards Binnu crossroads, 15 Aug. 1985, *N. Sammy s.n.* (PERTH 02572508); mainland, 12 miles [*c.* 19 km] N of Jurien Bay, 22 Oct. 1961, *G.M. Storr s.n.* (PERTH 02570475); Harrismith, 0.5 km E of township, Roe District, 26 Sep. 1979, *J. Taylor* 899, *M.D. Crisp*, & *R. Jackson* (PERTH 05043697, CANB); Near Forestry Station, Gnangara, July 1957, *C.L. Wilson s.n.* (PERTH 05026741).

*Distribution and habitat.* Widespread almost throughout the South West Botanical Province from Kalbarri National Park to Israelite Bay (Figure 2A), in heathlands and heathy woodlands and forests on sandy soils. The eastern margin of distribution is more or less concurrent with the clearing line of the wheatbelt, although a small number of collections come from pastoral country east of the wheatbelt (e.g. Brontie Station between Southern Cross and Kalgoorlie, 18 km NW of Bullabulling). The easternmost collection is on the Great Australian Bight south of Cocklebidly.

Within this range, *L. pentapetalum* occurs on a wide range of substrates, from travertine and lime-rich, coastal dunes to inland, acid sand-plains and from well-drained to winter-wet sites.



*Conservation status.* *Lysinema pentapetalum* is common and widespread, and occurs in many National Parks and Nature Reserves.

*Notes.* Not surprisingly, given the wide ecological range of the species, plants of *L. pentapetalum* show a great deal of variation, particularly in leaf dimensions and form (Figure 4), corolla length and confluence shape. Leaves and confluences vary in a similar manner to *L. ciliatum* (discussed above). Corollas are generally longer than in *L. ciliatum*.

A small number of short-flowered specimens (corolla tube 6–10 mm long) have been collected from exposed, coastal heaths between Point D'Entrecasteaux and Cheyne Beach (e.g. J.M. Powell 2643, G.J. Keighery 8557, V. Mann & A.S. George 121, and N.G. Marchant 71/719). These differ also in habit from typical *L. pentapetalum*, being short, dense, and much-branched rather than slender and little-branched; however, the exposed, coastal locations may account for this variation. These specimens are provisionally included in *L. pentapetalum* until field observations can determine their status.

As with *L. ciliatum*, the variation exhibited by *L. pentapetalum*, while striking, is continuous and is neither partitioned nor co-varying; it is considered here to represent ecological rather than taxonomic variation.

#### Other names in *Lysinema*

The following names in *Lysinema* are not discussed above; their synonymy is dealt with here for completeness.

***Lysinema attenuatum* (Lodd.) Link**, *Enum. hort. berol. alt.* 1: 211 (1821). *Type: n.v.* = *Woollisia pungens* (Cav.) F.Muell. *vide* APNI (2009).

***Lysinema brevilibatum* F.Muell.**, *Fragm.* 3(22): 142 (1863). *Type: In locis humidis ad Kalgan.* Aug. Oldfield, *n.v.* = *L. lasianthum* R.Br. *vide* Bentham (1869).

***Lysinema ciliatum* var. *ericoides* Ostenf.**, *Biol. Meddel. Kongel. Danske Vidensk. Selsk.* 3(2)(1921). *Type: Tammin, on sandy heath* (No. 937; 6 Oct. 1914), K?, *n.v.* From the locality this is almost certainly a junior synonym of *L. pentapetalum*.

***Lysinema ciliatum* var. *gracile* Wawra**, *Itin. princ. S. Coburgi* 1: 75 (1883). *Type: Australien.* King George's sound. Coll. 1 872 b. W? *n.v.* This is almost certainly a junior synonym of either *L. ciliatum* or *L. pentapetalum*.

***Lysinema ewartianum* Domin**, *Věstn. Král. České Společn. Nauk. Tř. Mat.-Přír.* 2(2): 102 (1923). *Type: W.A.: Bridgetown to Kojonup and Slab Hut Gulley, A.A. Dorrien-Smith, PR?, n.v.* From the locality this is almost certainly a junior synonym of *L. pentapetalum*.

***Lysinema ovatum* Sond.**, *Plant. Preiss.* 1(3): 329 (1845). *Type: In glareosis promontorii Cape Riche,* d. 20. Nov. 1840. Herb. Preiss. No. 443., MEL? *n.v.* This is almost certainly a junior synonym of either *L. ciliatum* or *L. pentapetalum*.

**Lysinema purpurascens (Sims) Courtois**, *Mag. Hort. (Liège)*: 105 (1833). *Type*: none cited *n.v.* = *Epacris purpurascens* Sims, ?= *Epacris purpurascens* R.Br. This is a NSW plant.

**Lysinema roseum Courtois** (as 'rosea'), *Mag. Hort. (Liège)*: 240 (1833). *Type*: none cited *n.v.* Probably = *Woollisia pungens* (Cav.) F.Muell.

**Lysinema ruscifolium Sieber ex Spreng.**, *Syst. Veg.* 4(2): Cur. Post. 64 (1827). *Type*: Nov. Holl. *n.v.* Probably = *Woollisia pungens* (Cav.) F.Muell.

**Lysinema sieberi Benth.**, *Enum. pl.*: 76 (1837). *Type*: none cited *n.v.* = *Woollisia pungens* (Cav.) F.Muell. fide Bentham (1869).

### Key to the species of *Lysinema*

1. Flowers well-separated on a 1-sided spike..... **L. lasianthum**
- 1: Flowers few together or forming a dense terminal head or spike
  2. Anthers and stigma distinctly exerted from the corolla-tube ..... **L. elegans**
  - 2: Anthers and stigma included in the corolla-tube
    3. Leaves and bracts attenuate-acuminate ..... **L. conspicuum**
    - 3: Leaves and bracts obtuse to acute, not attenuate
      4. Bracts fringed with irregularly lacerate lobes ..... **L. fimbriatum**
      - 4: Bracts ciliate, not irregularly lacerate-lobed
        5. Bracts 12–20(–25), chestnut-brown without a contrasting pale margin; leaves elliptic to ovate or (rarely) obovate ..... **L. ciliatum**
        - 5: Bracts 20–36, usually dull brown with a contrasting pale-ciliate margin; leaves linear to narrowly ovate ..... **L. pentapetalum**

### Acknowledgments

I would like to thank Mike Hislop for pointing out to me that the *Lysinema ciliatum* complex required systematic study, and Merle Bennett and the Ravensthorpe Wildflower Society for bringing to my attention the two forms of *Lysinema ciliatum* co-occurring near Hopetoun and for facilitating a field trip. Russell Barrett kindly agreed to search for and photograph types in a number of European herbaria, while Tony Orchard, as Australian Botanical Liaison Officer at Kew, helped track down and photograph others; this help was instrumental in resolving the taxonomy in the group. Ray Cranfield, Mike Hislop and Fred and Jean Hort shared their knowledge of the genus; in addition, Mike Hislop provided valuable comments on the manuscript.

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